IN THE CLAIMS:

Please amend claim 1 as follows:

1. (Currently Amended) A method, comprising:

performing a first calculation of calculating a complex product of two adjacent symbols of a first pattern sequence, the symbols comprising amplitude and phase information, thereby obtaining a first differential phase information sequence;

performing a second calculation of calculating a complex product of two adjacent symbols of a second pattern sequence, the symbols comprising amplitude and phase information, thereby obtaining a second differential phase information sequence;

~~a correlation of~~ correlating the first and second differential phase information sequences, thereby obtaining a correlation result; and

determining a synchronization between the first and second pattern sequences based on the obtained correlation result.

2. (Previously Presented) The method according to claim 1, wherein

in the first calculation a predetermined number Z of symbols of the first pattern sequence are used two at a time to calculate the complex product;

in the second calculation Z symbols 1 to Z of the second pattern sequence are used two at a time to calculate the complex product; and

the second calculation and correlation are repeated and wherein, for each repetition m in the second calculation, the predetermined number Z of symbols is shifted by one

symbol so that Z symbols 1+m to Z+m of the second pattern sequence are used two at a time to calculate the complex product.

3. (Previously Presented) The method according to claim 1, wherein phase information due to a mismatch of frequency information between the symbols of the first pattern sequence and the symbols of the second pattern sequence is detected based on the correlation result.

4. (Previously Presented) The method according to claim 1, wherein the symbols of the second pattern sequence are contained in a data symbol stream and are modulated in a different way from the data symbols in the data symbol stream, and wherein the method further comprises:

detecting the symbols of the second pattern sequence in the data symbol stream based on the different modulation.

5. (Previously Presented) The method according to claim 1, wherein, in the determining, the second pattern sequence is received by a receiving device from a transmitting device, and the first pattern sequence forms at least a part of the second pattern sequence and is stored in the receiving device.

6. (Previously Presented) The method according to claim 1, wherein, in the determining, the second pattern sequence comprises a sequence of IQ pilot symbols which are contained in a received data symbol stream and the first pattern sequence comprises a reference pattern sequence of IQ pilot symbols.

7. (Previously Presented) The method according to claim 6, wherein, in the determining, the IQ pilot symbols comprise quadrature phase shift keying (QPSK) modulated symbols, and the IQ pilot symbols of the second pattern sequence are periodically inserted into the data symbol stream at the transmitting device.

8. (Previously Presented) The method according to claim 1, wherein, in the determining, the second pattern sequence comprises a training sequence.

9. (Previously Presented) An apparatus, comprising:

first means for calculating a complex product of two adjacent symbols of a first pattern sequence, the symbols comprising amplitude and phase information, and outputting a first differential phase information sequence;

second means for calculating a complex product of two adjacent symbols of a second pattern sequence, the symbols comprising amplitude and phase information, and outputting a second differential phase information sequence;

third means for correlating the first and second differential phase information sequences, and outputting a correlation result; and

means for determining a synchronization between the first and second pattern sequences based on the correlation result.

10. (Previously Presented) The apparatus according to claim 9, wherein

the first means are configured for calculating the complex product for a predetermined number Z of symbols of the first pattern sequence two at a time;

the second means are configured for calculating the complex product for Z symbols 1 to Z of the second pattern sequence two at a time; and

the second and third means are configured for repeating the operations; the apparatus further comprising:

shifting means for shifting, for each repetition m, the predetermined number Z of symbols in the second means by one symbol so that Z symbols 1+m to Z+m of the second pattern sequence are used two at a time for calculating the complex product.

11. (Previously Presented) The apparatus according to claim 9, further comprising:

means for detecting phase information due to a mismatch of frequency information between the symbols of the first pattern sequence and the symbols of the second pattern sequence from the correlation result output by the third means.

12. (Original) The apparatus according to claim 9, further comprising:

storing means for storing the first pattern sequence.

13. (Original) The apparatus according to claim 9, further comprising:

means for detecting the symbols of the second pattern sequence in a data symbol stream.

14. (Previously Presented) A system, comprising:

a transmitting device which includes:

means for generating symbols of a pattern sequence to be used for synchronization; and

transmitting means for transmitting the symbols of the pattern sequence;

and a receiving device which includes:

first means for calculating a complex product of two adjacent symbols of a reference pattern sequence, the symbols comprising amplitude and phase information, and outputting a first differential phase information sequence;

receiving means for receiving the symbols of the pattern sequence transmitted by the transmitting device;

second means for calculating a complex product of two adjacent received symbols of the pattern sequence, the symbols comprising amplitude and phase information, and outputting a second differential phase information sequence;

third means for correlating the first and second differential phase information sequences, and outputting a correlation result; and

means for determining a synchronization between the received and reference pattern sequences based on the correlation result.

15. (Original) The system according to claim 14, said transmitting device further comprising:

first modulation means for modulating data of the pattern sequence to be used for synchronization, according to a first modulation scheme, thereby providing the symbols of the pattern sequence;

second modulation means for modulating payload data according to a second modulation scheme, thereby providing a data symbol stream; and

means for inserting the symbols of the pattern sequence into the data symbol stream.

16. (Previously Presented) The system according to claim 15, wherein the first modulation means are configured to modulate the data of the pattern sequence according

to quadrature phase shift keying (QPSK) modulation scheme, and the second modulation means are arranged to modulate the payload data quadrature amplitude modulation (QAM) or Trellis coded modulation (TCM) modulation scheme.

17. (Previously Presented) The system according to claim 15, wherein the inserting means are arranged to insert the quadrature phase shift keying (QPSK) modulated symbols periodically into the quadrature amplitude modulation (QAM) or Tellis coded modulation (TCM) modulated data symbol stream.

18. (Previously Presented) A computer program embodied on a computer readable medium, comprising software code portions for performing a method comprising:

a first calculation of calculating a complex product of two adjacent symbols of a first pattern sequence, the symbols comprising amplitude and phase information, thereby obtaining a first differential phase information sequence;

a second calculation of calculating a complex product of two adjacent symbols of a second pattern sequence, the symbols comprising amplitude and phase information, thereby obtaining a second differential phase information sequence;

correlating the first and second differential phase information sequences, thereby obtaining a correlation result; and

determining a synchronization between the first and second pattern sequences based on the obtained correlation result.

19. (Cancelled)

20. (Previously Presented) The computer program according to claim 18, wherein said computer readable medium is directly loadable into the internal memory of the computer.

21. (Previously Presented) A system, comprising:

a transmitting device which includes:

a symbol generator configured to generate symbols of a pattern sequence to be used for synchronization; and

a transmitter configured to transmit symbols of the pattern sequence;

and a receiving device which includes:

a first processor configured to calculate a complex product of two adjacent symbols of a reference pattern sequence, the symbols comprising amplitude and phase information, and outputting a first differential phase information sequence;

a receiver configured to receive the symbols of the pattern sequence transmitted by the transmitting device;

a second processor configured to calculate a complex product of two adjacent received symbols of the pattern sequence, the symbols comprising amplitude and phase information, and outputting a second differential phase information sequence;

a third processor configured to correlate the first and second differential phase information sequences, and output a correlation result; and

a fourth processor configured to determine a synchronization between the received and reference pattern sequences based on the correlation result.

22. (Previously Presented) The system according to claim 21, said transmitter further comprising:

first modulator configured to modulate data of the pattern sequence to be used for synchronization, according to a first modulation scheme, and provide the symbols of the pattern sequence;

second modulator configured to modulate payload data according to a second modulation scheme, and provide a data symbol stream; and

an insertion unit configured to insert the symbols of the pattern sequence into the data symbol stream.

23. (Previously Presented) The system according to claim 21, wherein the first modulator is configured to modulate the data of the pattern sequence according to quadrature phase shift keying (QPSK) modulation scheme, and the second modulator is

configured to modulate the payload data quadrature amplitude modulation (QAM) or Tellis coded modulation (TCM) modulation scheme.

24. (Previously Presented) The system according to claim 21, wherein the insertion unit is configured to insert the quadrature phase shift keying (QPSK) modulated symbols periodically into the quadrature amplitude modulation (QAM) or Tellis (TCM) modulated data symbol stream.

25. (Previously Presented) An apparatus, comprising:

a first calculator configured to calculate a complex product of two adjacent symbols of a first pattern sequence, the symbols comprising amplitude and phase information, and output a first differential phase information sequence;

a second calculator configured to calculate symbols of a second pattern sequence, the symbols comprising amplitude and phase information, and output a second differential phase information sequence;

a correlator configured to correlate the first and second differential phase information sequences, and output a correlation result; and

a synchronizer configured to determine a synchronization between the first and second pattern sequences based on the correlation result.

26. (Previously Presented) The apparatus according to claim 25, wherein

the first calculator is configured to calculate the complex product for a predetermined number Z of symbols of the first pattern sequence two at a time;

the second calculator is configured to calculate the complex product for Z symbols 1 to Z of the second pattern sequence two at a time; and

the second calculator and correlators are configured to repeat the operations; the apparatus further comprising:

a shifter configured to shift for each repetition m, the predetermined number Z of symbols in the second calculation unit by one symbol so that Z symbols 1+m to Z+m of the second pattern sequence are correlated two at a time.

27. (Previously Presented) The apparatus according to claim 25, further comprising:

a detector configured to detect phase information due to a mismatch of frequency information between the symbols of the first pattern sequence and the symbols of the second pattern sequence from the correlation result output by the correlation unit.

28. (Previously Presented) The apparatus according to claim 25, further comprising:

memory configured to store the first pattern sequence.

29. (Previously Presented) The apparatus according to claim 25, further comprising:

a detector configured to detect the symbols of the second pattern sequence in a data symbol stream.